

Quality Control

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐		No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER :			
Misidentified ☐		Past Due ☐					

Work Order ID 153313

Tuesday, November 15, 2016 2:43:17 PM

153313

Page 2

Item ID: 646.9703

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Cutter Sub Assembly

Start Date: 11/15/2016 Start Qty: 4.00

4

Cust Item ID:

Required Date: 12/2/2016 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Identify as per dwg & Stock Location: <u>CC1013</u>	0.00							
140									
Packaging	Memo	0.01							
Packaging	***IDENTIFY AS PER IAW MPP-120***								
150	QC21- Final Inspection - Work Order Release	0.00							
150									
QC	Memo	0.07							
Quality Control									

JAN 1 1 2017

DAS
21
9-89

DQA: _____ Date: _____



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Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		

Root Cause				FAULT CATEGORY			
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
				Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
				Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
				Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
				Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
				Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
				Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
				Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
				OTHER : _____			

Picklist Print

Tuesday, November 15, 2016 2:43:37 PM

Page 1

Work Order ID: 153313

153313

Parent Item: 646.9703

646 9703

Parent Item Name: Cutter Sub Assembly

Start Date: 11/15/2016

Required Date: 12/2/2016

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP REV:A NEW ISSUE 16-03-07 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
646.9713 *646 9713* Body		Manufactured	No		CCK103		Each	0.0000	**	4		DEC 12 2016	DAS 6 9-89
646.9711 *646 9711* Blade		Manufactured	No				Each	44.0000	**	8		DEC 12 2016	DAS 6 9-89
				<u>Location</u>			<u>Loc Qty</u>	<u>Loc Code</u>					
				CCK106			4						
				147263			4						
				CCK108A			40						
				148546			10						
				150119			30						
MS27039-08-19 *MS27039-08-19* Screw		Purchased	No				Each	301.0000	**	24		DEC 12 2016	DAS 6 9-89
				<u>Location</u>			<u>Loc Qty</u>	<u>Loc Code</u>					
				GA			182						
				m135948			182						
				ST277			119						
				m135865			19						
				m136042			100						
601.2764 *601 2764* Washer (NAS1149FN832P)	NAS1149FN832P	Purchased	No				Each	0.0000	**	48		DEC 12 2016	DAS 6 9-89
601.1541 *601 1541* Locknut (MS21042L08) (8-32 Thd) (Cad Plated) (100 Q)	MS21042L08	Purchased	No				Each	0.0000	**	24		DEC 12 2016	DAS 6 9-89

DQA: _____ Date: _____



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Date :		Step #:		QTY Effective :				MRB (QSI042) Approval 	
Description Work Order Deviation				Disposition					
								Completed By	
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Root Cause				FAULT CATEGORY			
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
				Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
				Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
				Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
				Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
				Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
				Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
				Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
				OTHER : _____			



APICAL INDUSTRIES, INC.
dba DART AEROSPACE

TRANSACTION CODES (TC):
A-ADD C-CREATE
R-REVISE D-DELETE

ENGINEERING CHANGE NOTICE NO.

05360

SHEET 1 OF 1

DWG NO. 646.9700

REV: D

PREPARED BY J. BECKER

DATE: 03/24/16

EFFECT ON DWG
☐ INC. ☒ UNINC.

DWG TITLE: CUTTER SUB ASSY

APPROVED BY:

ENGR

MFG

QC

EFF.

CURRENT ORDER

REASON: REVISED DIMENSIONS

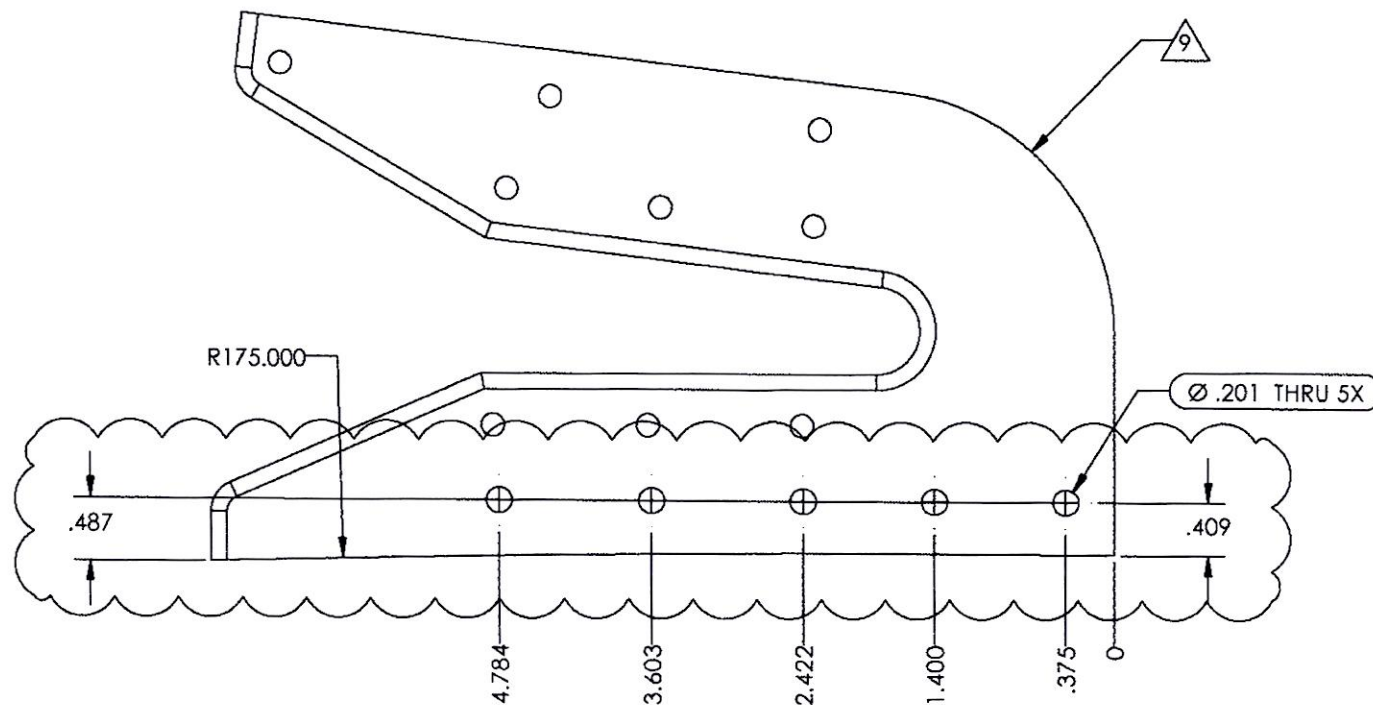
ECR:

N/A

ACTION ITEM:

1.

SHEET 7, ZONE C3 IS:



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO. 153813
16-11-15

DOCUMENTS EFFECTED:

☐ PATTERN ☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM

CHANGE CATEGORY

☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED

☐ YES ☒ NO

DART AEROSPACE APICAL INDUSTRIES, INC. dba DART AEROSPACE	ENGINEERING CHANGE NOTICE NO.		05345		SHEET 1 OF 1	
	DWG NO.	646.9700	REV:	D	PREPARED BY	J. GARDINER
	DATE:		03/15/16		EFFECT ON DWG ☐ INC. ☒ UNINC.	
	DWG TITLE: CUTTER SUB ASSY					
APPROVED BY:		ENGR.	MFG		QC	EFF. CURRENT ORDER
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE		REASON: REVISED NOTES				ECR: N/A

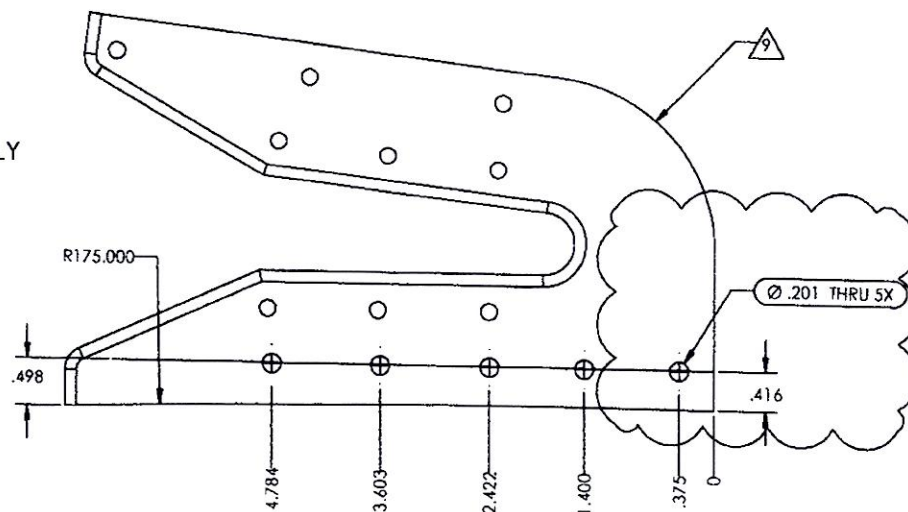
SHEET 1, ZONE A6 IS:

NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH IAW MPP-172 SECTION 2.1, 3.3 & 4.3.
- 3 MATERIAL: AISI A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MPP-172 SECTION 3.3; 1-2 MIL MAX
5. DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
6. IDENTIFY IAW MPP-120
- 7 APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE
- 9 ALL DIMENSIONS NOT SPECIFIED ARE CONTROLLED BY 646.9710.

IS

SHEET 7, ZONE C5 IS:



DOCUMENTS EFFECTED:

☐ PATTERN ☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM

CHANGE CATEGORY

☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED

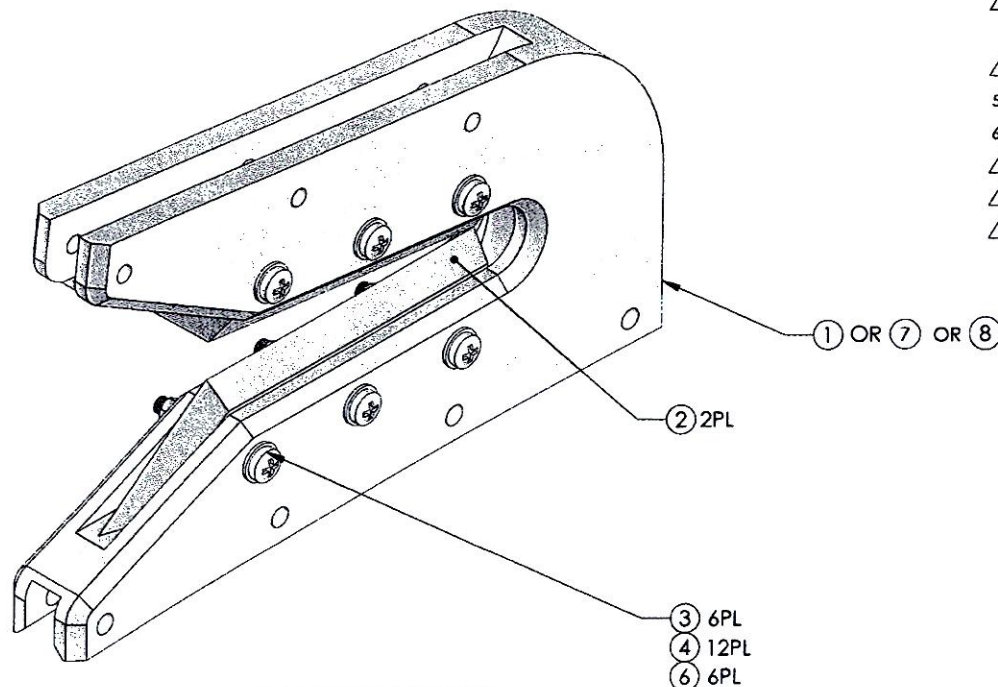
☐ YES ☒ NO

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REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
	LAST PROTOTYPE REVISION - P12		N/C
HC	INITIAL RELEASE	05/29/09	P. BRAVO
A	INCORPORATED ECN 02744, 02898, 03912	06/04/13	P. BRAVO
B	INCORPORATED ECN 02847	07/03/13	P. BRAVO
C	INCORPORATED ECN 04829	08/09/13	P. BRAVO
D	INCORPORATED ECN 04829	02/26/14	P. BRAVO

NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH IAW MPP-172 SECTION 3.3 & 4.3.
- 3 MATERIAL: AISI A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MPP-172 SECTION 3.3; 1-2 MIL MAX
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- 9 ALL DIMENSIONS NOT SPECIFIED ARE CONTROLLED BY 646.9710.



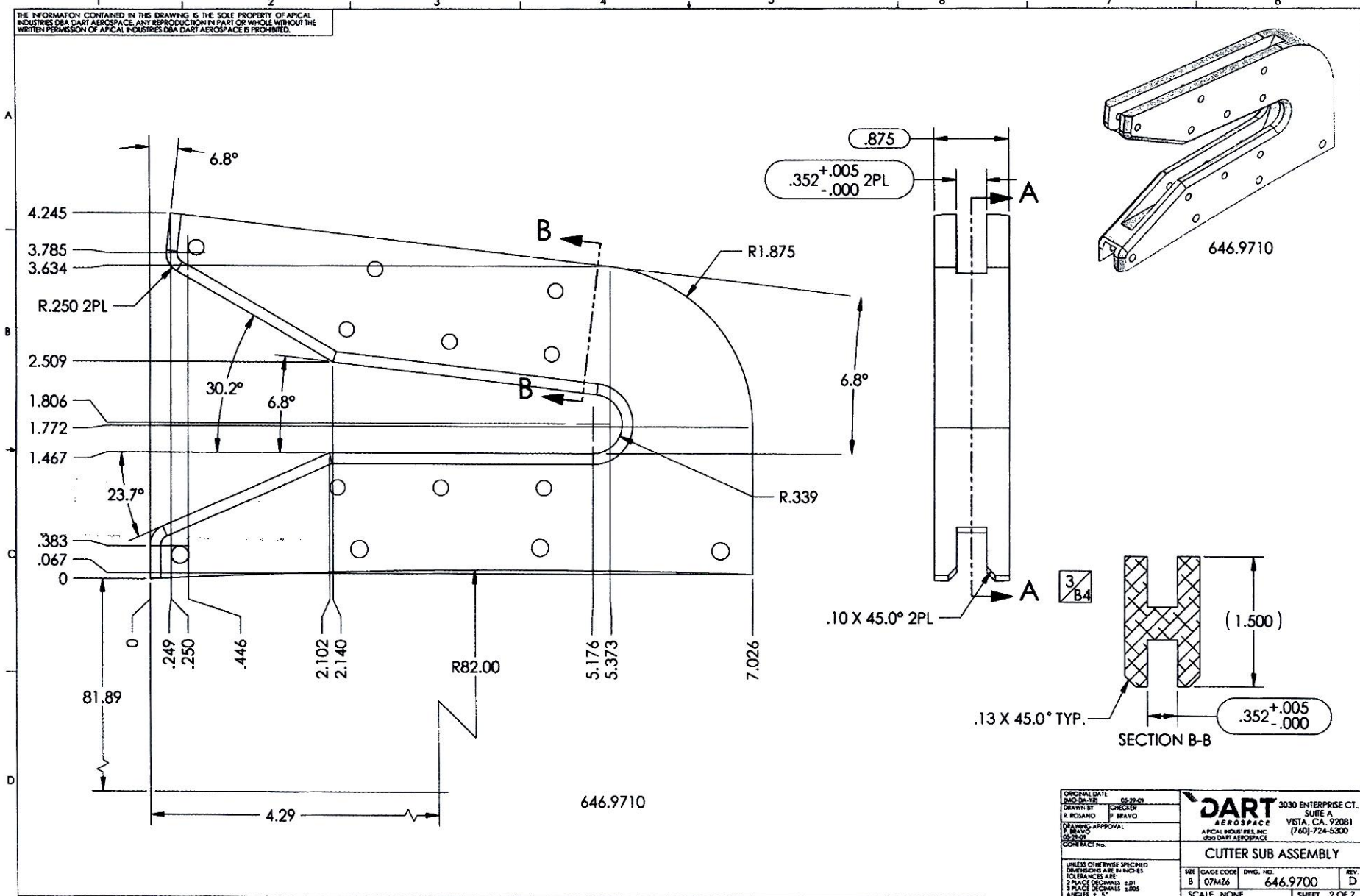
646.9701 SHOWN
646.9702 & 646.9703 TYP

UNINCORPORATED ECN(S)

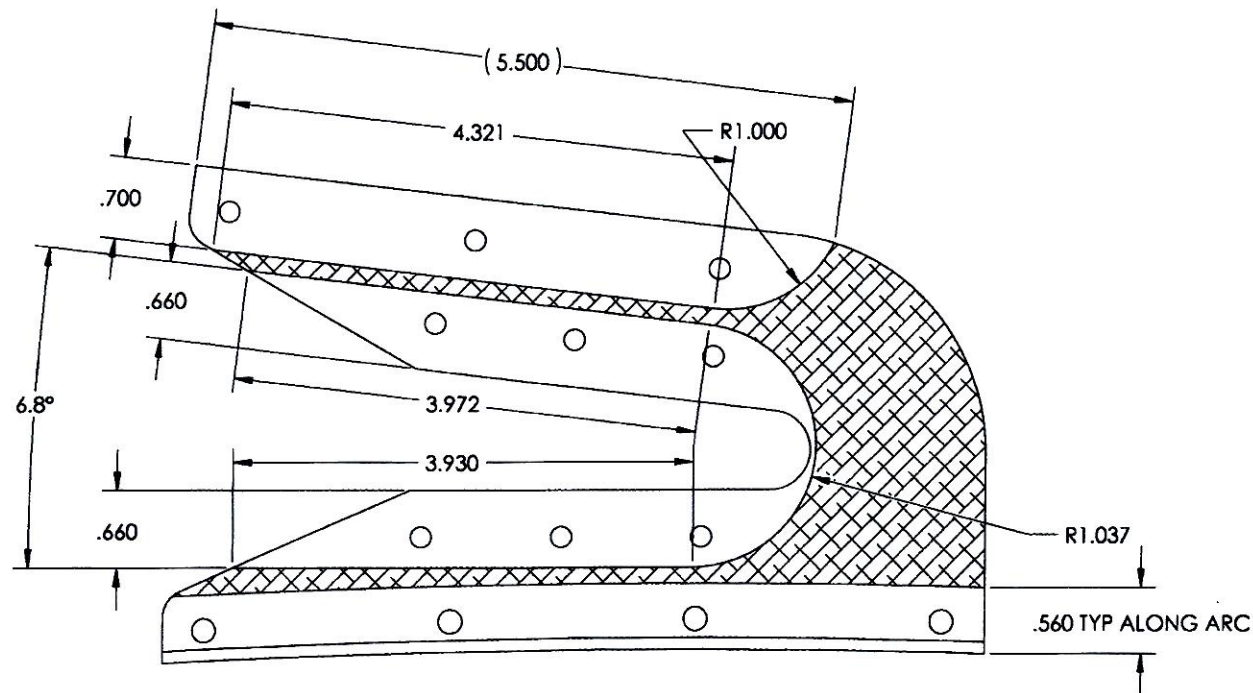
05345, 05360,

1			8	646.9713	BODY		△	△	△
	1		7	646.9712	BODY		△	△	△
6	6	6	6	601.1541	LOCKNUT	MS21047L08			
A/R	A/R	A/R	5	601.2045	RTV, LOCTITE 598				
12	12	12	4	601.2764	WASHER	NA31147N832P			
6	6	6	3	601.2765	SCREW	MS27039-0819			
2	2	2	2	646.9711	BLADE		△		△
			1	1	646.9710	BODY			△
X					646.9703	CUTTER SUB ASSY			
X					646.9702	CUTTER SUB ASSY			
		X			646.9701	CUTTER SUB ASSY			
9703	9702	9701	FIND #	PART #	DESCRIPTION	MAT'L	SPEC.		
QTY					PARTS LIST				
NEXT ASSY (S)					ORIGINAL DATE 05-29-09				
646.9600					DRAWN BY R. ROSANO CHECKED P. BRAVO				
					DRAWING APPROVAL P. BRAVO 05/29/09				
					CONTRACT NO.				
					UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01; 3 PLACE DECIMALS ±.005; ANGLES ±.5°				
					DART AEROSPACE 3030 ENTERPRISE CT. SUITE A VISTA, CA 92081 (760)-724-5300				
					APCAL INDUSTRIES, INC. DBA DART AEROSPACE				
					CUTTER SUB ASSEMBLY				
					SHEET CASE CODE DWG. NO. 646.9700 REV. D				
					SCALE NONE SHEET 1 OF 7				

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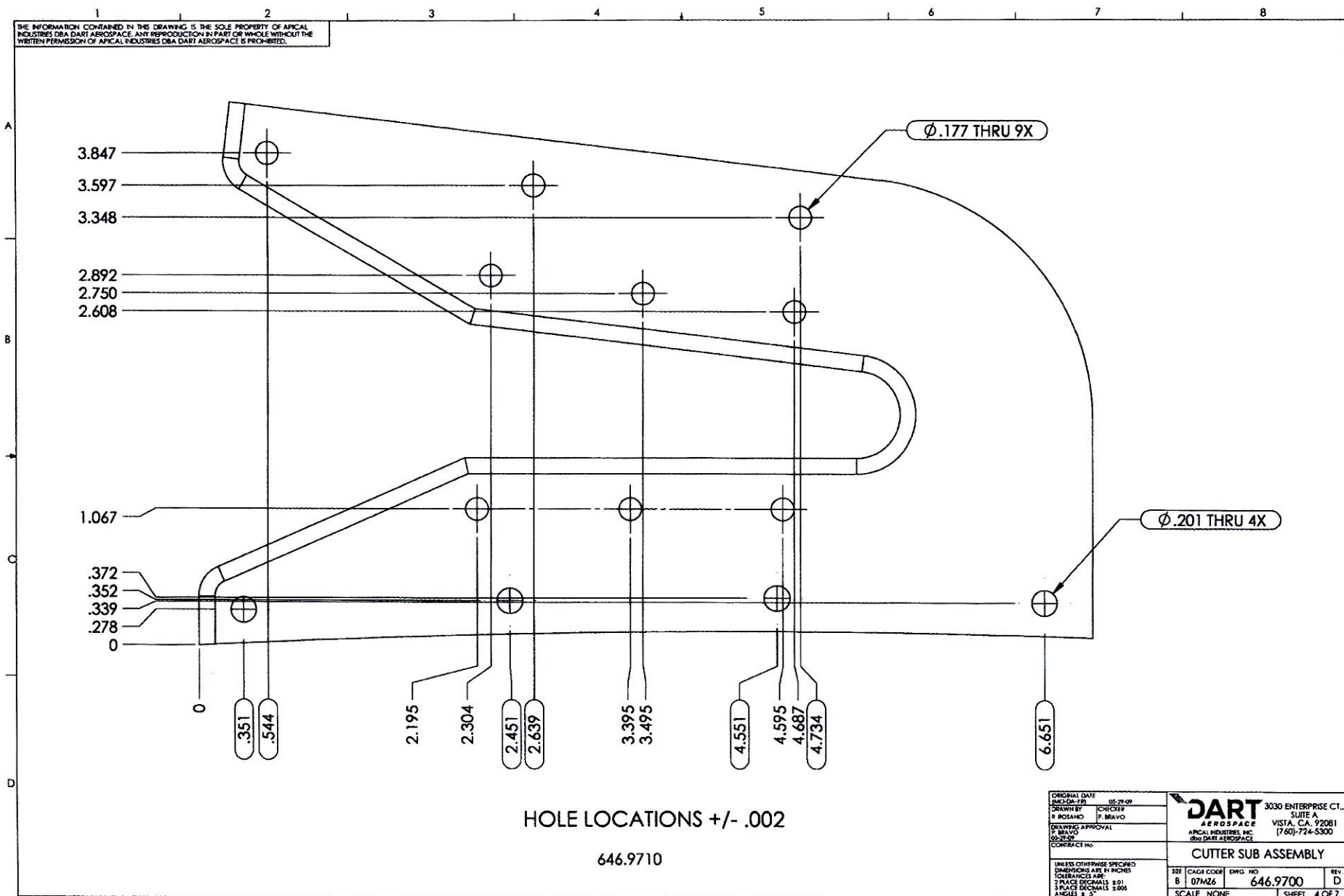


SECTION A-A $\frac{2}{C6}$

646.9710

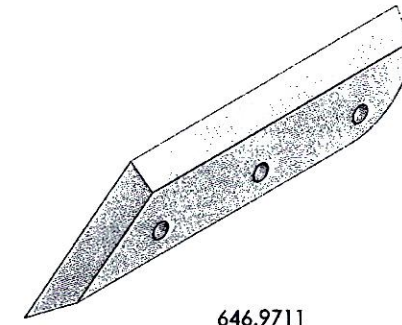
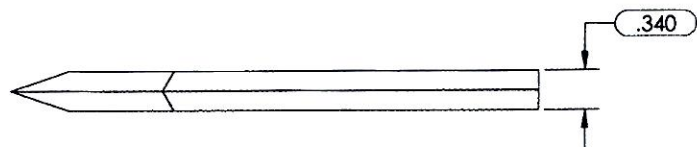
ORIGINAL DATE 05/29/09	3030 ENTERPRISE CT., SUITE A
DRAWN BY R. ROSANO	VISTA, CA 92081
CHECKED BY P. BRAVO	(760) 724-5300
DRAWING APPROVAL P. BRAVO	APICAL INDUSTRIES, INC. DBA DART AEROSPACE
CONTRACT NO.	CUTTER SUB ASSEMBLY
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°	SRT CAGE CODE DWG. NO. REV. B 07M26 646.9700 D
	SCALE: NONE SHEET 3 OF 7

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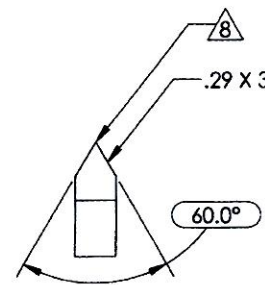
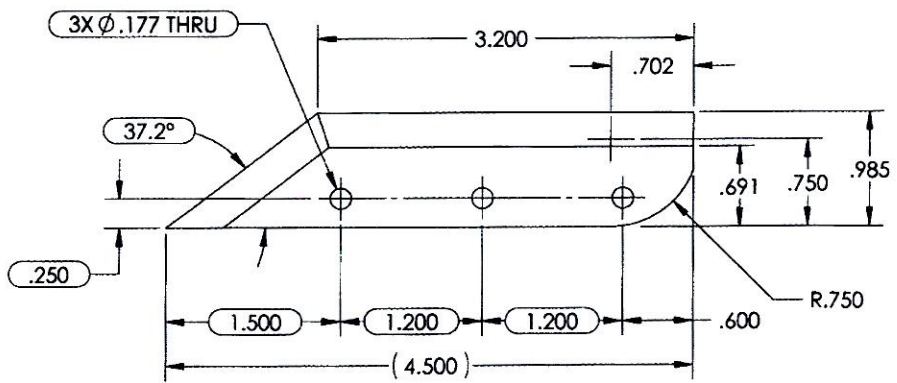


ORIGINAL DATE 05-07-09		DRAWN BY R. ROSANO		CHECKED BY P. BRAVO	
DRAWING APPROVAL 05-27-09		CONTRACT NO.		DART AEROSPACE 3030 ENTERPRISE CT., SUITE A VISTA, CA. 92081 (760)-724-5300 APICAL INDUSTRIES, INC. DBA DART AEROSPACE	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 1 PLACE DECIMALS .001 2 PLACE DECIMALS .005 ANGLES ± .5°		CUTTER SUB ASSEMBLY		REV. D	
SCALE NONE		SHEET 4 OF 7		DWG. NO. 646.9700	

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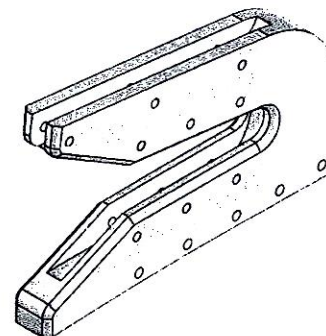
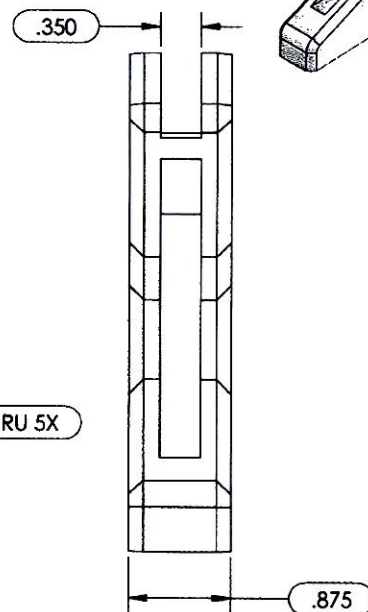
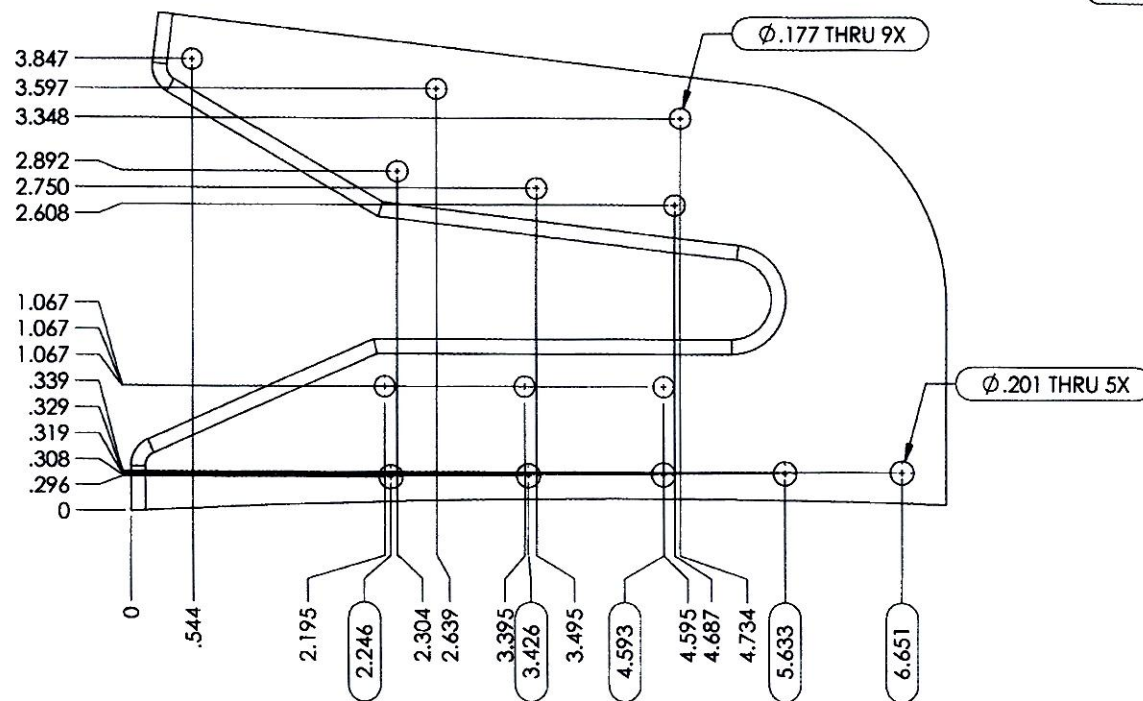
646.9711



646.9711

ORIGINAL DATE 10/01/01	05/20/01	DART AEROSPACE 3030 ENTERPRISE CT., SUITE A VISTA, CA, 92081 (760)-724-5300	
DRAWN BY P. ROSANO	CHECKED P. BRAVO	APCAL INDUSTRIES, INC. DBA DART AEROSPACE	
DRAWING APPROVAL P. BRAVO		CUTTER SUB ASSEMBLY	
CONTRACT NO.			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°		SHEET B	07M26
		DWG. NO. 646.9700	REV. D
		SCALE NONE	SHEET 5 OF 7

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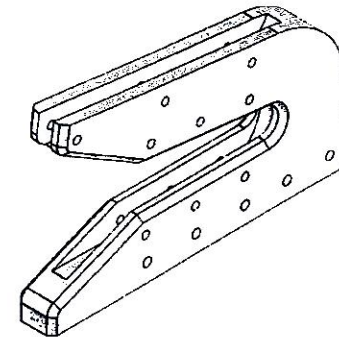


646.9712 $\triangle 9$

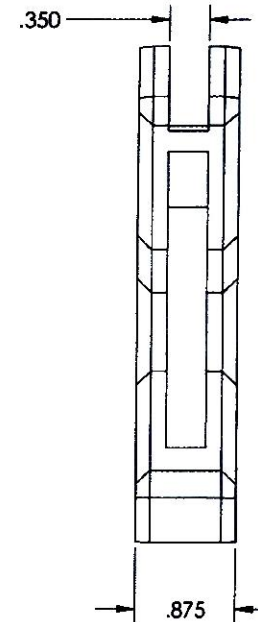
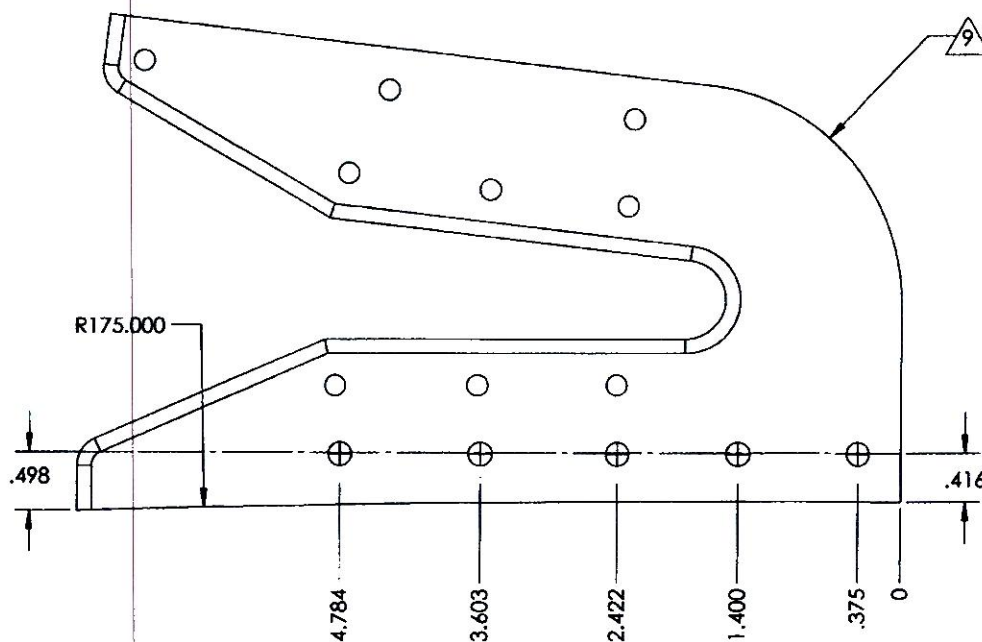
646.9712

ORIGINAL DATE 02-29-09		3030 ENTERPRISE CT., SUITE A	
DRAWN BY R. ROSANO		VISTA, CA 92081	
CHECKED BY P. BRAVO		(760)-724-5300	
DRAWING APPROVAL P. BRAVO		APICAL INDUSTRIES, INC. (DBA DART AEROSPACE)	
CONTRACT NO.		CUTTER SUB ASSEMBLY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS $\pm .01$ 3 PLACE DECIMALS $\pm .005$ ANGLES $\pm .5^\circ$			
SHEET 8	CAGE CODE 07M26	DWG. NO. 646.9700	REV. D
SCALE NONE		SHEET 6 OF 7	

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646.9713



ORIGINAL DATE 05-28-09		3030 ENTERPRISE CT. SUITE A	
DRAWN BY A. POIRAND		VISTA, CA. 92081	
CHECKED BY J. BRAY		(760)-724-5300	
DRAWING APPROVAL P. BRAY		APICAL INDUSTRIES, INC. DBA DART AEROSPACE	
CONTRACT NO.		CUTTER SUB ASSEMBLY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°		REV B 07/02/06	REV D
SCALE NONE		SHEET 7 OF 7	